

STRUCTURE AND METHOD OF FORMING A BIPOLAR TRANSISTOR HAVING A SELF- ALIGNED RAISED EXTRINSIC BASE USING A LINK-UP REGION FORMED FROM AN OPENING THEREIN

Abstract

A bipolar transistor is provided which includes a collector region, an intrinsic base layer including a single-crystal semiconductor overlying the collector region, and an emitter disposed within a first opening overlying the intrinsic base layer. The bipolar transistor includes a raised extrinsic base, which in turn includes a raised extrinsic base layer and a link-up region which electrically connects the raised extrinsic base layer to the intrinsic base layer. The link-up region also self-aligns the raised extrinsic base to the emitter. The link-up region is disposed in a second opening separate from the first opening and in an undercut region extending from the second opening below the raised extrinsic base layer.